

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A clipping device for judging whether or not vertices expressed by a predetermined coordinate system are inside or outside a multi-dimensional region of an object to be drawn, comprising:

a clip code generation circuit for generating clip codes obtained by setting data in accordance with results of a comparison of coordinates of said vertices and a judgment reference value of said multi-dimensional region and a negative value of the judgment reference value as bit data;

a current clip register for shifting the clip codes generated at said clip code generation circuit;

clip registers cascade connected to an output of said current clip register for replacing the held data with the clip codes held by the register of a previous stage; and

a logic circuit for performing a logic operation with respect to all bit data set in said clip registers and setting a clip flag indicating whether or not a vertex to be judged is inside or outside the multi-dimensional region of the object to be drawn[[]],

wherein,

the current clip register includes a first clip register and corresponding first multiplexer, a second clip register and corresponding second multiplexer, and a third clip register and corresponding third multiplexer,

the first multiplexer selects a clip code CLPC or a parameter for initialization from the clip code generation circuit and outputs the selection to a lower 2 bits of the first register,

the second multiplexer selects the output of the first register or logic 0 and outputs the selection to a middle 2 bits of the second register, and

the third multiplexer selects the output of the second register or logic 0 and outputs the selection to an upper 2 bits of the third register.

2. (Previously Presented) The clipping device as set forth in claim 1, wherein:
said coordinates of vertices include values corresponding to a plurality of coordinate axes of the predetermined coordinate system,
said clip code generation circuit generates a plurality of clip codes corresponding to the coordinate axes, and
said clip registers have a capacity for holding at least said plurality of clip codes.

3. (Previously Presented) The clipping device as set forth in claim 1, wherein said clip code generation circuit generates said clip codes based on code data obtained by subtracting an absolute value of said judgment reference value from the absolute value of said vertex coordinates, code data of said vertex coordinates, and code data of said judgment reference value.

4. (Previously Presented) The clipping device as set forth in claim 2, wherein said clip code generation circuit generates said clip codes based on code data obtained by

subtracting an absolute value of said judgment reference value from the absolute value of said vertex coordinates, code data of said vertex coordinates, and code data of said judgment reference value.

5. (Currently Amended) A clipping device for judging whether vertices of a primitive expressed by a predetermined coordinate system are inside or outside of a multi-dimensional region of an object to be drawn, a polyhedron being drawn in units of primitives including a plurality of vertices, comprising:

a clip code generation circuit for generating clip codes obtained by setting data in accordance with results of a comparison of vertex coordinates of said primitive and a judgment reference value of said multi-dimensional region and a negative value of the judgment reference value as bit data for the amount of the vertices of the primitive;

a current clip register for shifting the clip codes generated at said clip code generation circuit in accordance with a control signal;

clip registers, of at least a number smaller than the number of the vertices of said primitive by one, cascade connected to an output of said current clip register for replacing the held data with the clip codes held by the register of a previous stage in accordance with a control signal;

a control circuit for outputting said control signal to the current clip register when receiving a clip code generation instruction to shift the clip codes generated at said clip code generation circuit and outputting said control signal to a corresponding clip register so as to replace the clip codes between adjacent clip registers including said current clip register when receiving a replacement instruction; and

a logic circuit for performing a logic operation with respect to all bit data set in the clip registers including said current clip register and setting a clip flag indicating whether or not the vertex to be judged is inside or outside the multi-dimensional region of the object to be drawn[[.]],

wherein,

the current clip register includes a first clip register and corresponding first multiplexer, a second clip register and corresponding second multiplexer, and a third clip register and corresponding third multiplexer,

the first multiplexer selects a clip code CLPC or a parameter for initialization from the clip code generation circuit and outputs the selection to a lower 2 bits of the first register,

the second multiplexer selects the output of the first register or logic 0 and outputs the selection to a middle 2 bits of the second register, and

the third multiplexer selects the output of the second register or logic 0 and outputs the selection to an upper 2 bits of the third register.

6. (Previously Presented) The clipping device as set forth in claim 5, wherein said control circuit outputs said control signal to a corresponding clip register to replace the clip codes along with the vertex processing in accordance with the type of the primitive.

7. (Previously Presented) The clipping device as set forth in claim 5, wherein said control circuit generates a vertex ready flag indicating that a quantity of vertex of clip codes of said primitive are ready at the time of execution of the replacement instruction.

8. (Previously Presented) The clipping device as set forth in claim 6, wherein said control circuit generates a vertex ready flag indicating that a quantity of vertex clip codes of said primitive are ready at the time of execution of the replacement instruction.

9. (Previously Presented) The clipping device as set forth in claim 5, wherein said control circuit selectively initializes a desired register among a plurality of clip registers including said current clip register under predetermined conditions.

10. (Previously Presented) The clipping device as set forth in claim 6, wherein said control circuit selectively initializes a desired register among a plurality of clip registers including said current clip register under predetermined conditions.

11. (Previously Presented) The clipping device as set forth in claim 5, wherein:
said coordinates of said vertices include values corresponding to a plurality of coordinate axes of a predetermined coordinate system, and
said clip code generation circuit generates a plurality of clip codes corresponding to the coordinate axes, and said clip registers have capacities for holding at least said plurality of clip codes.

12. (Previously Presented) The clipping device as set forth in claim 5, wherein the clip code generation circuit generates said clip codes based on code data obtained by subtracting an absolute value of said judgment reference value from the absolute

value of said vertex coordinates, code data of said vertex coordinates, and code data of said judgment reference value.